**Willem-Jan van Hoeve**
Assistant Professor of Operations Research
Tepper School of Business
Carnegie Mellon University

March, 2012

# Curriculum Vitae

## Education

2005 Ph.D., Computer Science, Faculty of Science, University of Amsterdam, and Centrum voor Wiskunde en Informatica (CWI), The Netherlands "*Operations Research Techniques in Constraint Programming*" (K.R. Apt, Chair, P. van Emde Boas, A.M.H. Gerards, M. Laurent, M. Milano, M. de Rijke, A. Schrijver, L. Torenvliet)

2000 M.Sc., Mathematical Programming, Department of Applied Mathematics, University of Twente, The Netherlands "*Towards the Integration of Constraint Logic Programming and Mathematical Programming*" (J.J. Bisschop, Chair, J.L. Hurink, J.B.J. Heerink)

## Positions Held

2007– Assistant Professor of Operations Research, Tepper School of Business, Carnegie Mellon University

2005–07 Postdoctoral Associate, Department of Computer Science, Cornell University

## Publications

### Articles in refereed journals (i.e., critical peer review before publication)

P. Benchimol, W.-J. van Hoeve, J.-C. Régin, L.-M. Rousseau, and M. Rueher. Improved Filtering for Weighted Circuit Constraints. *Constraints*. Forthcoming, 2012.

J. Conrad, C.P. Gomes, W.-J. van Hoeve, A. Sabharwal, and J.F. Suter. Wildlife corridors as a connected subgraph problem. *Journal of Environmental Economics and Management* 63(1): 1–18, 2012.

W.-J. van Hoeve, G. Pesant, L.-M. Rousseau, and A. Sabharwal. New Filtering Algorithms for Combinations of Among Constraints. *Constraints* 14: 273–292, 2009.

W.-J. van Hoeve, G. Pesant, and L.-M. Rousseau. On Global Warming: Flow-Based Soft Global Constraints. *Journal of Heuristics* 12(4–5): 347–373, 2006.

W.-J. van Hoeve. Exploiting Semidefinite Relaxations in Constraint Programming. *Computers & Operations Research* 33(10): 2787–2804, 2006.

### Articles in refereed conference proceedings

A.A. Cire and W.-J. van Hoeve. MDD Propagation for Disjunctive Scheduling. In *Proceedings of the Twenty-Second International Conference on Automated Planning and Scheduling (ICAPS)*. AAAI Press, 2012.

A.A. Cire, E. Coban, and W.-J. van Hoeve. Flow-Based Combinatorial Chance Constraints. In *Proceedings of the 9th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*. Springer, 2012.

D. Bergman, A.A. Cire, W.-J. van Hoeve, and J.N. Hooker. Variable Ordering for the Application of BDDs to the Maximum Independent Set Problem. In *Proceedings of the 9th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*. Springer, 2012.

R. Steiger, W.-J. van Hoeve, and R. Szymanek. An Efficient Generic Network Flow Constraint. In *Proceedings of the 26th ACM Symposium on Applied Computing (SAC)*, pages 893–900. ACM, 2011.

D. Bergman, W.-J. van Hoeve, and J.N. Hooker. Manipulating MDD Relaxations for Combinatorial Optimization. In *Proceedings of the 8th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 6697 of *Lecture Notes in Computer Science*, pages 20–35. Springer, 2011.

S. Hoda, W.-J. van Hoeve, and J.N. Hooker. A Systematic Approach to MDD-Based Constraint Programming. In *Proceedings of the 16th International Conference on Principles and Practice of Constraint Programming (CP)*, volume 6308 of *Lecture Notes in Computer Science*, pages 266–280. Springer, 2010.

P. Benchimol, J.-C. Régin, L.-M. Rousseau, M. Rueher, and W.-J. van Hoeve. Improving the Held and Karp Approach with Constraint Programming. In *Proceedings of the 7th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 6140 of *Lecture Notes in Computer Science*, pages 40–44. Springer, 2010.

J.-C. Régin, L.-M. Rousseau, M. Rueher, and W.-J. van Hoeve. The Weighted Spanning Tree Constraint Revisited. In *Proceedings of the 7th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 6140 of *Lecture Notes in Computer Science*, pages 176–180. Springer, 2010.

C. Gunes, W.-J. van Hoeve, and S. Tayur. Vehicle Routing for Food Rescue Programs: A Comparison of Different Approaches. In *Proceedings of the 7th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 6140 of *Lecture Notes in Computer Science*, pages 287–291. Springer, 2010.

Y. Malitsky, M. Sellmann, and W.-J. van Hoeve. Length-Lex Bounds Consistency for Knapsack Constraints. In *Proceedings of the 14th International Conference on Principles and Practice of Constraint Programming (CP)*, volume 5202 of *Lecture Notes in Computer Science*, pages 266–281. Springer, 2008.

C.P. Gomes, W.-J. van Hoeve, and A. Sabharwal. Connections in Networks: A Hybrid Approach. In *Proceedings of the 5th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 5015 of *Lecture Notes in Computer Science*, pages 303–307. Springer, 2008.

W.-J. van Hoeve and A. Sabharwal. Filtering Atmost1 on Pairs of Set Variables. In *Proceedings of the 5th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 5015 of *Lecture Notes in Computer Science*, pages 382–386. Springer, 2008.

C.P. Gomes, W.-J. van Hoeve, A. Sabharwal, and B. Selman. Counting CSP Solutions Using Generalized XOR Constraints. In *Proceedings of the Twenty-Second Conference on Artificial Intelligence and the Nineteenth Conference on Innovative Applications of Artificial Intelligence (AAAI/IAAI)*, pages 204–209. AAAI Press, 2007.

W.-J. van Hoeve, C.P. Gomes, M. Lombardi, and B. Selman. Optimal Multi-Agent Scheduling with Constraint Programming. In *Proceedings of the Twenty-Second Conference on Artificial Intelligence and the Nineteenth Conference on Innovative Applications of Artificial Intelligence (AAAI/IAAI)*, pages 1813–1818. AAAI Press, 2007.

J. Conrad, C.P. Gomes, W.-J. van Hoeve, A. Sabharwal, and J. Suter. Connections in Networks: Hardness of Feasibility versus Optimality. In *Proceedings of the 5th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 4510 of *Lecture Notes in Computer Science*, pages 16–28. Springer, 2007.

W.-J. van Hoeve, G. Pesant, L.-M. Rousseau, and A. Sabharwal. Revisiting the Sequence Constraint. In *Proceedings of the Twelfth International Conference on Principles and Practice of Constraint Programming (CP)*, volume 4204 of *Lecture Notes in Computer Science*, pages 620–634. Springer, 2006.

W.-J. van Hoeve and J.-C. Régin. Open Constraints in a Closed World. In *Proceedings of the Third International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 3990 of *Lecture Notes in Computer Science*, pages 244–257. Springer, 2006.

C.P. Gomes, W.-J. van Hoeve, and L. Leahu. The Power of Semidefinite Programming Relaxations for MAX-SAT. In *Proceedings of the Third International Conference on Integration of AI and OR Techniques*

*in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, volume 3990 of *Lecture Notes in Computer Science*, pages 104–118. Springer, 2006.

W.-J. van Hoeve. A Hyper-Arc Consistency Algorithm for the Soft Alldifferent Constraint. In *Proceedings of the Tenth International Conference on Principles and Practice of Constraint Programming (CP)*, volume 3258 of *Lecture Notes in Computer Science*, pages 679–689. Springer, 2004.

W.-J. van Hoeve and M. Milano. Postponing Branching Decisions. In *Proceedings of the 16th European Conference on Artificial Intelligence (ECAI)*, pages 1105–1106. IOS Press, 2004.

W.-J. van Hoeve. A Hybrid Constraint Programming and Semidefinite Programming Approach for the Stable Set Problem. In *Proceedings of the Ninth International Conference on Principles and Practice of Constraint Programming (CP)*, volume 2833 of *Lecture Notes in Computer Science*, pages 407–421. Springer, 2003.

M. Milano and W.-J. van Hoeve. Reduced Cost-Based Ranking for Generating Promising Subproblems. In *Proceedings of the Eighth International Conference on Principles and Practice of Constraint Programming (CP)*, volume 2470 of *Lecture Notes in Computer Science*, pages 1–16. Springer, 2002.

**Articles in edited books/volumes**

W.-J. van Hoeve. Semidefinite Programming and Constraint Programming (invited chapter). In M.F. Anjos and J.B. Lasserre (eds.), *Handbook of Semidefinite, Cone and Polynomial Optimization: Theory, Algorithms, Software and Applications*, pages 635–668. Springer, 2012.

W.-J. van Hoeve. Over-Constrained Problems (invited chapter). In P. Van Hentenryck and M. Milano (eds.), *Hybrid Optimization: the 10 years of CPAIOR*, pages 191–225. Springer, 2011.

W.-J. van Hoeve and I. Katriel. Global Constraints (invited chapter). In F. Rossi, P. van Beek, and T. Walsh (eds.), *Handbook of Constraint Programming*, chapter 6, pages 169–208. Elsevier, 2006.

**Books/volumes**

W.-J. van Hoeve and J.N. Hooker (eds.). Proceedings of the 6th International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR), volume 5547 of *Lecture Notes in Computer Science*, Springer, 2009. (332 pages)

**Other Papers**

W.-J. van Hoeve. MDD Propagation for Sequence Constraints. Tepper School of Business Working Paper 2011-E12, Carnegie Mellon University, 2011.

W.-J. van Hoeve, M. Hunting, and C. Kuip. The Aimms Interface to Constraint Programming. In *Proceedings of Late Breaking Abstracts of CPAIOR*, pp. 41–43, 2011.

B.K. Peterson, W.-J. van Hoeve, L.G. Debo, and S. Kekre. Flexible Milk-Runs for Stochastic Vehicle Routing. Tepper School of Business Working Paper 2010-E78, Carnegie Mellon University, 2010.

G. Dooms, L. Mercier, P. Van Hentenryck, W.-J. van Hoeve and L. Michel. Length-Lex Open Constraints. Technical Report CS-07-09, Brown University, 2007.

W.-J. van Hoeve and A. Sabharwal. Two Set-Constraints for Modeling and Efficiency. In *Proceedings of the 6th International Workshop on Constraint Modelling and Reformulation (ModRef)*, 2007.

C.P. Gomes, W.-J. van Hoeve, and B. Selman. Constraint Programming for Distributed Planning and Scheduling. In *Proceedings of the AAAI 2006 Spring Symposium on Distributed Plan and Schedule Management* (2 pages), AAAI Press, 2006.

W.-J. van Hoeve, G. Pesant, and L.-M. Rousseau. On Global Warming (Softening Global Constraints). In *Proceedings of the 6th International Workshop on Preferences and Soft Constraints*, 2004.

W.-J. van Hoeve. A Hybrid Constraint Programming and Semidefinite Programming Approach for the Stable Set Problem. In *Proceedings of the Fifth International Workshop on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)*, pages 3–16, 2003.

W.-J. van Hoeve and M. Milano. Decomposition Based Search – A theoretical and experimental evaluation. Technical Report LIA00203, University of Bologna, 2003.

W.-J. van Hoeve. The Alldifferent Constraint: A Survey. In *Proceedings of the Sixth Annual Workshop of the ERCIM Working Group on Constraints*, 2001.

## Research Grants and Contracts

Google Research Award, "Improved MDD-Based Optimization for Bin Packing Problems" ($84,158) (2012)
Role: Principal Investigator

National Science Foundation CMMI award #1130012, "Multivalued Decision Diagrams in Optimization" ($324,963) (2011–2014)
Role: Co-Principal Investigator (with John N. Hooker, Tepper School of Business)

Berkman Faculty Development Grant, "Optimization for Food Rescue Programs" ($10,000) (2010)
Role: Principal Investigator

Center for Business Solutions and Microsoft, "Computing and Visualizing Decision Impact in MS Dynamics" ($50,000) (2008–2009)
Role: Co-Investigator (with Stephen F. Smith, Robotics Institute, CMU)

Carnegie-Bosch Institute and Bosch/Siemens Home Appliances, "Sourcing Strategy Development for Bosch/Siemens Home Appliances" ($52,000) (2008)
Role: Co-Investigator (with Laurens Debo, Sham Kekre, and Sunder Kekre, Tepper School of Business)

## Professional Activities

### Plenary talks/tutorials at Conference/Symposium

Invited semi-plenary talk, "Decision Diagrams for Discrete Optimization", Mixed Integer Programming (MIP) Workshop Series (2011)

Invited Tutorial, "Global Constraints in Constraint Programming", Montreal Optimization Days (2010)

Tutorial, "Soft Global Constraints", Fifteenth International Conference on Principles and Practice of Constraint Programming (CP) (2009) – Accepted through proposal/selection procedure

Invited Tutorial, "Soft Global Constraints", Second International Summer School on Constraint Programming (2006)

### Invited talks at Conference/Symposium

The Aimms Interface to Constraint Programming, *INFORMS Optimization Society Conference* (2012)

MDD Propagation for Sequence Constraints, *INFORMS Optimization Society Conference* (2012)

MDD Propagation for Sequence Constraints, *INFORMS Annual Meeting* (2011)

An Efficient Network Flow Constraint, *INFORMS Annual Meeting* (2011)

Decision Diagrams in Constraint Programming, *Workshop on Constraint Modelling and Reformulation (ModRef)*, 2011. Speaker at panel on the future of CP modeling and solving.

Improving the Held and Karp Approach With Constraint Programming, *INFORMS Annual Meeting* (2010)

MDD-Based Propagation of Among Constraints, *24th European Conference on Operational Research (EURO)* (2010)

The Weighted Spanning Tree Constraint Revisited, *Optimization Days – Montreal* (2010)

Connections in Networks: A Hybrid Approach, *INFORMS Annual Meeting* (2009)

Domain Filtering for the Intersection of Set Variables, *INFORMS Annual Meeting* (2009)

Domain Filtering for the Intersection of Set Variables, *23rd European Conference on Operational Research (EURO)* (2009)

Counting CSP Solutions using Generalized XOR Constraints, *INFORMS Annual Meeting* (2008)

Local Branching with Semidefinite Relaxations, *SIAM Conference on Optimization* (2008)

Optimal Scheduling of Collaborative Agents, *Tenth INFORMS Computing Society Conference* (2007)

Filtering Algorithms for the Sequence Constraint, *INFORMS Annual Meeting* (2007)

Open Constraints in a Closed World, *INFORMS Annual Meeting* (2007)

Semidefinite Relaxations in Constraint Programming, *INFORMS Annual Meeting* (2006)

The Power of Semidefinite Programming Relaxations for MAXSAT, *21st European Conference on Operational Research (EURO)* (2006)

Open Constraints in a Closed World, *Optimization Days – Montreal* (2006)

The Power of Semidefinite Programming Relaxations for MAX-SAT, *Optimization Days – Montreal* (2006)

Constraint Programming for Distributed Planning and Scheduling, *AAAI Spring Symposium on Distributed Plan and Schedule Management* (2006)

An Efficient Propagation Algorithm for the Soft-Alldifferent Constraint, *INFORMS Annual Meeting* (2005)

Postponing Branching Decisions. *INFORMS Annual Meeting* (2005)

On Global Warming: Flow Based Soft Global Constraints, *Optimization Days – Montreal* (2005)

Exploiting Semidefinite Relaxations in Constraint Programming, *CORS/INFORMS Joint International Meeting* (2004)

A Hyper-Arc Consistency Algorithm for the Soft Alldifferent Constraint, *Optimization Days – Montreal* (2004)

On Global Warming (Softening Global Constraints), *Sixth International Workshop on Preferences and Soft Constraints* (2004)

A Hybrid Constraint Programming and Semidefinite Programming Approach for the Stable Set Problem, *Fifth International Workshop on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)* (2003)

A hybrid constraint programming and semidefinite programming approach for the stable set problem, *Optimization Days – Montreal* (2003)

The Alldifferent Constraint: A Survey, *Sixth Annual Workshop of the ERCIM Working Group on Constraints* (2001)

**Conference talks after critical review prior to presentation**

Vehicle Routing for Food Rescue Programs, *Seventh International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)* (2010)

Filtering Atmost1 on Pairs of Set Variables, *Fifth International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)* (2008)

Optimal Multi-Agent Scheduling with Constraint Programming, *Nineteenth Conference on Innovative Applications of Artificial Intelligence (IAAI)* (2007)

Revisiting the Sequence Constraint, *Twelfth International Conference on Principles and Practice of Constraint Programming (CP)* (2006)

Open Constraints in a Closed World, *Third International Conference on Integration of AI and OR Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR)* (2006)

A Hyper-Arc Consistency Algorithm for the Soft Alldifferent Constraint, *Tenth International Conference on Principles and Practice of Constraint Programming (CP)* (2004)

A Hybrid Constraint Programming and Semidefinite Programming Approach for the Stable Set Problem, *Ninth International Conference on Principles and Practice of Constraint Programming (CP)* (2003)

Reduced Cost-Based Ranking for Generating Promising Subproblems, *Eight International Conference on Principles and Practice of Constraint Programming (CP)* (2002)

**Seminars at other academic institutions**

Decision Diagrams for Discrete Optimization, École Polytechnique de Montréal (2011)

Decision Diagrams for Discrete Optimization, CWI (2011)

Decision Diagrams for Discrete Optimization, Utrecht University (2011)

Filtering Algorithms for the Sequence Constraint, IBM-ILOG Research, Sophia Antipolis (2009)

Constraint Programming for Sequencing Problems, University of Nice–Sophia Antipolis (2009)

Constraint Programming for Sequencing Problems, Eindhoven University of Technology (2009)

Optimal Scheduling of Collaborative Agents, Harvard University (2007)

Optimal Scheduling of Collaborative Agents, Brown University (2007)

Algorithms in Constraint Programming: The Sequence Constraint, Brown University (Colloquium speaker, Department of Computer Science) (2006)

Constraint Programming: Algorithms and Applications, Cornell University (2006)

Constraint Programming for Distributed Planning and Scheduling, University of Montreal (2006)

Constraint Reasoning in Intelligent Systems (four lectures), Intelligent Information Systems Institute, Cornell University (2005)

Postponing Branching Decisions, University of Nantes (2004)

Exploiting Semidefinite Relaxations in Constraint Programming, University of Bologna (2003)

Reduced cost-based ranking for generating promising subproblems, University of Bologna (2002)

**Awards, Prizes, Honors**

Faculty Giving Chair (Academic Year 2011–2012)

George Leland Bach MBA Teaching Award (2011)

BP Junior Faculty Chair (Academic Year 2008–2009)

Best paper award at the Twelfth International Conference on Principles and Practice of Constraint Programming (CP) for *"Revisiting The Sequence Constraint"* (2006)

Best student paper award at the Tenth International Conference on Principles and Practice of Constraint Programming (CP) for *"A Hyper-Arc Consistency Algorithm for the Soft Alldifferent Constraint"* (2004)

## Editorial Roles

### Scientific/Professional Journals

Associate Editor, *Decision Analytics* (2012–)

Editor, *Constraints* (2010–)

Editor, *Constraint Programming Letters* (2006–)

Ad Hoc Referee for *Operations Research*, *INFORMS Journal on Computing*, *Artificial Intelligence*, *Constraints*, *Journal of Artificial Intelligence Research*, *Journal of Computer and System Sciences*, *Mathematical Programming*, *Journal of Heuristics*, *Computers and Operations Research*, *Operations Research Letters*, *Annals of Operations Research*, *Information Systems and Operational Research*, *Software: Practice and Experience*, *AI Communications*.

## Service

### Conference or program committee chair or member

Co-chair of the Constraint Programming Cluster of the International Symposium on Mathematical Programming (ISMP) (2012)

Program committee member of the INFORMS Optimization Society Conference (2012)

Co-chair of the cluster *Computing Society/Constraint Programming and Integrated Methods* at the INFORMS annual meeting (2011)

Program committee member of the International Joint Conference on Artificial Intelligence (IJCAI) (2011)

Program committee member of the International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR) (2007–2012)

Program co-chair and co-organizer of the International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR) (2009)

Co-chair of the Student Abstract and Poster Program for the National Conference on Artificial Intelligence (AAAI) (2008)

Program committee member of the National Conference on Artificial Intelligence (AAAI) (2006, 2007, 2008, 2010, 2012)

Program committee member of the International Conference on Principles and Practice of Constraint Programming (CP) (2007, 2012)

Program committee member of the European Conference on Artificial Intelligence (ECAI) (2008, 2012)

**Workshop program committee member**

Program committee member of the international workshop on Hybrid Methods for Nonlinear Combinatorial Problems (in conjunction with CPAIOR) (2011)

Program co-chair and co-organizer of the international workshop on Hybrid Methods for Nonlinear Combinatorial Problems (in conjunction with CPAIOR) (2010)

Program committee member of the International Workshop on Constraint Reasoning and Optimization for Computational Sustainability (in conjunction with CP) (2009, 2010); (in conjunction with CPAIOR) (2010)

Program committee member of the International Workshop on Constraint Propagation and Implementation (in conjunction with CP) (2004, 2005, 2006)

Program committee member of the International Workshop on Preferences and Soft Constraints (in conjunction with CP) (2006)

**Other conference-related service**

Session chair at the Modeling OPtimization Conference: Theory and Applications (MOPTA) (2012)

Session chair at the INFORMS Annual Meeting (2008, 2010–2011)

Committee member of the Doctoral Program of the International Conference on Principles and Practice of Constraint Programming (CP) (2007, 2011, 2012)

Mentor in the Doctoral Program of the International Conference on Principles and Practice of Constraint Programming (CP) (2006, 2011)

Publicity co-chair of the Second International Conference on Integration of Artificial Intelligence and Operations Research Techniques in Constraint Programming for Combinatorial Optimization Problems (CPAIOR) (2005)

## Research Visits

École Polytechnique de Montréal, visiting Prof.dr. L.-M. Rousseau (2010, 2011)

University of Nice–Sophia Antipolis, visiting Prof.dr. J.-C. Régin and Prof.dr. M. Rueher (2009)

Harvard University, visiting Prof.dr. B.J. Grosz (2007)

Brown University, visiting Prof.dr. P. Van Hentenryck (2006, 2007)

University of Montreal, visiting Prof.dr. G. Pesant and Prof.dr. L.-M. Rousseau (2004, 2006)

University of Nantes, visiting Prof.dr. E. Monfroy (2004)

National University of Singapore, visiting Prof.dr. K.R. Apt (2003)

University of Bologna, visiting Prof.dr. M. Milano (2001, 2002, 2003, 2004)

## Student Supervision

### Master's Student Supervision

Casey Johnson (Tepper MBA), Independent study 45-997, "Inventory Reallocation and Optimal Routing" (2010)

Sumit Mitra, Visiting student (RWTH Aachen University), Master's Thesis, "Hybrid Methods for Mixed-Integer Nonlinear Programming Problems" (2009)

Markus Völker, Visiting student (University of Karlsruhe), joint with R. Ravi, Master's Thesis, "Scheduling and Topology Control in Wireless Sensor Networks" (2008)

### Doctoral Student Committees

David Bergman (Thesis Committee Co-chair) (Tepper School of Business, CMU)

Elvin Coban (Thesis Committee member) (Tepper School of Business, CMU)
(Thesis Title: Deterministic and Stochastic Models for Practical Scheduling Problems) (2013, expected)

Shweta Shah (Thesis Committee member) (Chemical Engineering, CMU)
(Thesis Title: Optimization Models and Strategies for Protein Structure Alignment) (2011)

Canan Gunes (Thesis Committee member) (Tepper School of Business, CMU)
(Thesis Title: Essays on Operations Management) (2010)

Sylvain Mouret (Thesis Committee member) (Chemical Engineering, CMU)
(Thesis Title: Optimal Scheduling of Refinery Crude-Oil Operations) (2010)

Samid Hoda (Thesis Committee member) (Tepper School of Business, CMU)
(Thesis Title: Essays on equilibrium computation, MDD-based constraint programming and scheduling) (2010)

Benjamin K. Peterson (Thesis Committee member) (Tepper School of Business, CMU)
(Thesis Title: Transportation Scheduling Methods) (2010)

Erkut Sonmez (Thesis Committee member) (Tepper School of Business, CMU)
(Thesis Title: Capacity Management with Technology Considerations) (2009)